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(71) Applicant (for all designated States except US):
VEKOMA RIDES ENGINEERING B.V. [NL/NL];
Schaapweg 18, NL-6063 BA Vlodrop (NL).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **CLERX, Petrus,**

Joseph, Hubertus [NL/NL]; Arendhorst 8, NL-6043 RR
Roermond (NL). **ROODENBURG, Joop** [NL/NL]; St
Eustatiusstraat 7, NL-2612 HA Delft (NL).

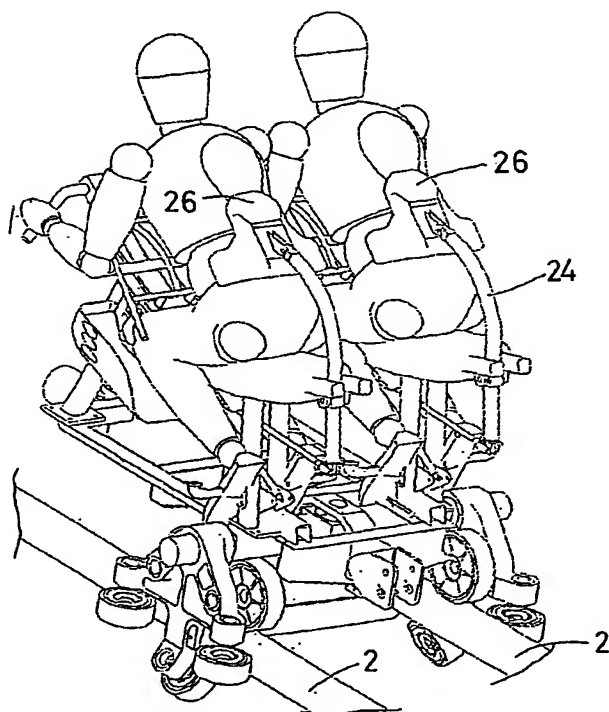
(74) Agent: **BROOKHUIS, H., J., A.**; Exter Polak & Char-
louis B.V., P.O. Box 3241, NL-2280 GE Rijswijk (NL).

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(54) Title: **AMUSEMENT DEVICE**



(57) Abstract: The invention relates to an amusement device comprising a track-like guide construction (2), along which at least one vehicle (4) is movable in a direction of transport. The vehicle comprises a holder (5) for a person, which holder comprises at least a back support (26) and a seat (6). The back support can be positioned against a person's back, with the person's back including an acute angle with the guide construction, seen in the direction of transport, under the influence of the back support.

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Amusement device

The invention relates to an amusement device comprising a track-like guide construction, along which at least one vehicle is movable in a direction of transport, said vehicle comprising a holder for a person, which holder comprises at least a back support and a seat.

In such an amusement device, which is known from European patent EP-B1-1 027 114, a person seats himself in a holder present above a guide construction, after which the holder is tilted in such a manner that the person's back will extend parallel to the guide construction. Following that, the holder is moved to a suspended position under the guide construction. In this position, the holder is moved over the track-like guide construction. During said movement, the person in question experiences a sensation of being able to fly, as it were.

Most people experience such an amusement device as very spectacular. For those who consider this known amusement device to be too spectacular, amusement devices are known in which the person is moved over the guide construction in a sitting position. As amusement devices of this kind have been known for quite some time already, they are not considered to be sufficiently challenging in some cases.

The object of the invention is to provide an amusement device in which persons can be moved over the guide construction in a safe but nevertheless exciting position.

This object is accomplished with the amusement device according to the invention in that the back support can be positioned against a person's back, with the persons' back including an acute angle with the guide construction, seen in the direction of transport, under the influence of the back support.

Since the person's back includes an acute angle with the guide construction, the person is forced to take up a position similar to the position in which a person rides a motorcycle or a galloping horse.

Such a position enhancing the sensation of speed of the person being moved over the track-like guide construction.

It is noted that from DE-U1-202.17.754 there is known an amusement device comprising a guide construction over which a motorcycle-like vehicle can be moved. A person sitting on a seat of the vehicle is connected to the vehicle by means of two semicylindrical bars. A drawback of such bars is the fact that the person's upper body can freely move through said bars, so that the person is not safely connected to vehicle, for example when going through a loop. In addition, the person is seated in an upright position on the vehicle, so that he or she will not experience a sensation of riding a motorcycle.

It is noted that from FR-2.756.248 there is known a motor vehicle in which a back support forces the person's back into a position in which said person's back includes an acute angle with the direction of movement, seen in the direction of movement. Said document does not relate to an amusement device in which the vehicle is moved over a track-like guide construction, however, which guide construction may comprise a loop, for example. The person must safely remain seated on the vehicle also when going through such a loop, during which the vehicle and the person seated therein execute a somersault. The person must be prevented from falling out of the vehicle in sideways direction as well.

It is noted that from FR-342.301 there is known an amusement device in which a bicycle-like vehicle is moved over a guide construction. A support arranged near a person's neck prevents said person from bumping his head against a part of the vehicle present above his head. The seat of the vehicle that is shown in said French document is a relatively simple saddle. When the vehicle executes a somersault, the person can easily slip off the saddle and become detached from the vehicle. Consequently, the vehicle that is known from said French document is not suitable for being moved over a guide construction at a relatively high speed, during which movement the person experiences a

sensation of riding a motorcycle.

One embodiment of the amusement device according to the invention is characterized in that the holder comprises leg supports disposed between the seat and the guide construction, which leg supports force the person's lower legs into a position in which they include an acute angle with the guide construction, seen in the direction of transport.

Since the person's legs, too, include an acute angle with the guide construction in this manner, the sensation of riding a motorcycle or a galloping horse, as it were, is intensified. In this position, the person takes up a Z-shaped position, as it were, in which both the person's back and his legs include an acute angle with the guide construction, seen in the direction of transport.

Knee supports and foot supports may help to achieve said Z-shaped position of the person, whilst in addition they provide a comfortable support of said person.

Another embodiment of the amusement device according to the invention is characterized in that the back support can be moved from a boarding position to a securing position, and vice versa, with the back support in use abutting against the person's back in said securing position.

In this way it is easy for a person to position himself on the seat in the boarding position, after which the back support is moved to the securing position, with the back support forcing the person's back into a forwardly inclined position, as it were. The person will thus be able to position himself in the holder in an easy, quick and efficient manner. Preferably, the back support is moved from the securing position to the boarding position again when the person gets out, so that this, too, will be relatively easy. As a result, the time required for getting into and out of the holder will be relatively short. This is important with a view to enabling a maximum number of persons to use the amusement

device within a particular period of time.

Another embodiment of the amusement device according to the invention is characterized in that the amusement device comprises at least one handle positioned in front of the back support, seen in the direction of transport, which handle is connected to the back support via a system of links, wherein the back support can be pivoted by means of said handle.

In this way a person positioning himself in the holder can take hold of the handle so as to move the back support from a boarding position to a position in which it abuts against said person's back. The person is thus actively involved in the boarding of the amusement device. In the case of a motorcycle, the handle may be embodied as handlebars, which further enhances the sensation of riding a motorcycle.

Yet another embodiment of an amusement device according to the invention is characterized in that in that the handle can be moved against spring force.

In this way the handle, and thus also the back connected thereto, can preferably take up a position in which the back support is in a boarding position, as it were.

According to another embodiment of the amusement device according to the invention, the back support can be locked in position.

Preferably, the back support can be locked in the position in which the person's back includes an acute angle with the guide construction. This ensures that the person will remain fixed in this position while being moved over the guide construction.

Yet another embodiment of the amusement device according to the invention is characterized in that the holder comprises a movable locking element, wherein the person's legs can be secured in use by means of the locking element.

In this way not only the person's back but also his legs are fixed in position, thus ensuring an additional fixation of the

person.

Another embodiment of the amusement device according to the invention is characterized in that the handle is connected to the movable locking element, wherein both the locking element and the back support can be moved by means of said handle.

In this way it is possible to realise a back fixation and a leg fixation simultaneously by means of the handle.

Yet another embodiment of the amusement device according to the invention is characterized in that the amusement device comprises at least two vehicles arranged side by side, seen in the direction of transport, which can be jointly moved over the guide construction.

The use of vehicles which are arranged side by side makes it possible to increase the number of persons that can make use of the amusement device simultaneously. In addition, it may invoke a sensation as if being engaged in a race against other motorcyclists, as it were.

Yet another embodiment of the amusement device according to the invention is characterized in that a sidecar is present beside the vehicle, seen in the direction of transport, which sidecar is provided with a seat on which a person can be positioned.

The use of said sidecar renders the amusement device suitable also for use by relatively small persons who are not tall enough yet to be fixed in position in the holder by means of a back support. Such a sidecar is furthermore suitable for persons who cannot or do not want to be moved over a guide construction with their back in a forwardly inclined position. Using the sidecar, such persons can still have a sensation of being moved by means of a motor cycle.

The invention will be explained in more detail hereinafter with reference to the drawing, in which:

Figs. 1A-1C are side elevations of an amusement device according to the invention, showing a boarding position, an intermediate position and a securing position, respectively;

Fig. 2 is another side elevation of the amusement device that is shown in Fig. 1A;

Figs. 3 is another side elevation of the amusement device that is shown in Fig. 1C;

Figs. 4A-4C are perspective views of the amusement device that is shown in Figs. 1A-1C, showing the boarding position, a boarding position in which a person is present on a holder, and a securing position, respectively, of the amusement device;

Figs. 5A and 5B are perspective front and rear views of an amusement device according to the invention, which is provided with two vehicles according to the invention are arranged side by side; and

Fig. 6 is a perspective view of another embodiment of the amusement device according to the invention, which is provided with a vehicle according to the invention as well as with a sidecar positioned beside said vehicle.

In the figures, like parts are indicated by the same numerals.

Figs. 1A-1C show various side views of an amusement device 1 according to the invention, which is provided with a track-like guide construction 2, over which a vehicle 4 is movably supported via guide rollers 3. The vehicle 4 can be moved in the direction indicated by the arrow P1 either by a separate drive unit or by the force of gravity. The vehicle 4 comprises a motorcycle-like construction 5, which is provided with a forwardly inclined (seen in the direction of transport P1) seat 6 and a stop plate 7 disposed near a front side of the seat 6. The seat 6 is connected to a frame 9 of the vehicle 4 by means of a rod 8. At its front side, the seat 6 is provided with a rod 10 extending in line with the seat 6, which rod is connected, at an end remote from the seat, to a supporting rod 11 that is connected to the frame 9. At an end remote from the frame 9, the supporting rod 11 is provided with a guide section 12 extending substantially transversely to

the supporting rod 11. Said guide section 12 slidably supports a handle 13. Said handle 13 is rigidly connected to a locking element 14, which comprises two locking pins 15 extending on either side of the seat 6. The locking element 14 and the locking pins 15 connected thereto may be formed in the shape of the petrol tank of a motorcycle, for example. The handle 13 and the locking element 14 are provided with a toothed rack 16 on another side of the guide section 12. On a side remote from the handle 13, the toothed rack 16 is pivotally connected to an end 17 of a piston rod 19 which is movable within a gas spring 18. The gas spring 18 is pivotally connected to the frame 9 on a side remote from the toothed rack 16. The toothed rack 16 is furthermore pivotally connected to a coupling rod 22 near the pivot 17, which coupling rod is pivotally connected to a bar 24 at an end 23 remote from the pivot 21. Said bar 24 is pivoted to the seat 6 about the pivot 26 near a rear side of the seat 6, as a result of which the bar can pivot about the pivot 25 in the direction indicated by arrow P2 and in the opposite direction. At an end remote from the pivot 23, the bar 24 is provided with a back support 26, which is pivotally connected to the bar 24 via a pivot 27.

Near the guide section 12, the vehicle 4 is provided with an element 28 to be brought into engagement with the toothed rack 16, by means of which element the toothed rack 16 can be locked against movement in a direction indicated by arrow P3. The element 28 can be operated by means of a hydraulic or electric unit (not shown), which is connected to the element 28 via a line 29.

Fig. 2 shows another side view of the amusement device 1 that is shown in Fig. 1A, in which gutter-shaped supports 30 are provided on a front side of the seat 6, between the locking element 14 and the frame 9, on either side of the rod 10. Each support 30 comprises a lower leg support 31 and a knee support 32 connected thereto. Each support 30 is pivoted to the rod 10 via a pivot 33.

Between the seat 6 and the frame 9, the supporting rod 8 is

provided with two foot supports 34 positioned on either side of the rod 8.

Fig. 3 is a view similar to Fig. 1C, with this difference that the view of the Fig. 3 is taken from a different side of the amusement device 1, whilst furthermore also the supports 30 are shown in Fig. 3.

The operation of the amusement device 1 according to the invention will now be explained in more detail with reference to Figs. 1A-1C and Figs. 4A-4C. Figs. 4A-4C are perspective views of the positions of the amusement device 1 as shown in Fig. 1A-1C, with a person 35 furthermore being present on a seat.

The amusement device 1 that is shown in Fig. 1A comprises an elongated guide construction 2, which may form an endless track, for example, comprising various bends, slopes, loops, so-called corkscrews, etc. Such configurations of guide constructions are known per se and will not be explained in more detail herein, therefore.

In the position of the amusement device 1 that is shown in Figs. 1A and 4A, the vehicle 4 is in a so-called boarding position. In this position, the element 28 has been brought into engagement with the toothed rack 16 via the line 29, as a result of which the handle 13 and the locking element 14 connected thereto, as well as the bar 14 and the back support 26 connected thereto, have been moved to the position as shown in Figs. 1A and 4A by means of the gas spring 18. In said boarding position, there is relatively much space for a person 35 who wishes to seat himself on the seat 6. To that end, a person 35 swings one leg over the seat 6 and seats himself on the seat 6. As soon as the person 35 sits on the seat 6, he will automatically move forward in order to take hold of the grips 36 of the handle 13. The person 35 can move forward until his belly abuts against the stop 7. While moving forward, the person 35 will automatically place his knees 35 against the knee supports 32 and his lower legs 38 against the lower leg supports 31. Furthermore, he will

place his feet 39 on the foot supports 34. The person 35 now takes hold of the grips 36 with his hands 40 and pulls the handle 13 as well as the locking element 14 connected thereto towards him, in the direction indicated by arrow P3, against the spring force of the gras spring 18. As a result, the toothed rack 16 is likewise moved in the direction indicated by arrow P3, whilst the rod 22 connected to the toothed rack 16 is moved in a direction opposed to the direction of transport P1. As a result of the movement of the rod 22, the bar 24 is pivoted about the pivot 25 in the direction indicated by arrow P2. The person 35 must continue to move the handle 13 in the direction indicated by arrow P3 until the back support 26 abuts firmly against said person's back 40.

While the handle 13 is being moved in the direction indicated by arrow P3, the locking bars 15 are simultaneously positioned over the person's upper legs 41. The person 35 is now in the secured position as shown in Fig. 4C.

In this secured position, the person's upper body as well as his legs are enclosed in such a manner that the person cannot undesirably get out of the vehicle.

After a surveillant has checked whether all the persons present in the amusement device 1 are correctly seated in the associated vehicle 4, a signal is delivered to the element 29 over the line 19, in response to which the toothed rack 16 is locked against movement in the direction indicated by arrow P3 and in the opposite direction. The person 35 is now firmly secured in the vehicle 4.

The vehicle 4 is now ready for being moved over the track-like guide construction. It is impossible for the person 35 to leave the vehicle 4, because the back support 26 pushes the person in forward direction, whilst at the same time the person's legs 38, 41 are fixed in position in the vehicle 4 as well. A support may be provided between the locking bars 50, against which support the person can position his chest, so that the person 35 can even remove his hands 14 from the handle.

Since the back support 26 is pivotally connected to the bracket 24, the back support 26 can easily adjust itself to accommodate the person's back 40. The same applies with regard to the supports 30, which can pivot about the pivot 33.

When a person 35 is to leave the vehicle 4, a signal is delivered to the element 28 over the line 29, as a result of which the locking engagement of the toothed rack 16 is released again. The handle 13, the locking element 14 and the back support 26 will return to the position that is shown in Figs. 1A, 4A under the influence of the action of the gas spring 18, after which the person 35 can leave the vehicle 4.

In the position of the person 35 that is shown in Fig. 4C, the person's back 40 as well as his lower legs 38 include an acute angle with the guide construction that extends parallel to the direction of transport P. As a result, the person's body takes up a Z-shaped position, as it were, which strongly resembles the position of a person riding a real motorcycle. A similar position is taken up by a person riding a galloping horse.

Figs. 5A and 5B are perspective views of an amusement device 1 according to the invention provided with two vehicles 4 positioned side by side. Since each vehicle 4 has its own mechanism for moving the back support 26, the handle 13, the locking element 14, etc to the securing position, each vehicle 4 can be optimally adapted to the dimensions of the person 35 being seated on the vehicle 4 in question.

Fig. 6 shows another embodiment of an amusement device 1 according to the invention, in which a sidecar-like vehicle 45 can be guided over the guide construction 2 beside a vehicle 4 by means of guide wheels 3. The sidecar 45 comprises a tub-like housing 46, in which a person can be seated. The back 40 of a person present in the sidecar rests against a back support 47. The person can be locked in position in the sidecar 35 by means of locking bars (not shown) that are known per

se. The sidecar 45 is in particular suitable for persons who are not allowed to or unable to ride the vehicle 4, for example because they are too small or because they are unable to place their back and legs in the required Z-shaped position and maintain that position.

The vehicles can be moved over the guide construction by the force of gravity or by separate drive units, with a high speed and a rapid acceleration of the vehicles being possible even in upward direction.

The fact that the vehicles are relatively open, that is, envelope the person to a minimal extent, is experienced as a special thrill by the persons riding the vehicle.

At the same time, the shape of the back support, the knee supports and the lower leg supports ensures a correct, safe fixation of the person present in the vehicle.

The movement of the back support from the boarding position to the fixed position and vice versa can be realised manually, mechanically and/or electrically.

CLAIMS

1. An amusement device (1) comprising a track-like guide construction (2), along which at least one vehicle (4) is movable in a direction of transport P1, said vehicle comprising a holder (5) for a person, which holder comprises at least a back support (26) and a seat (6), characterized in that the back support (26) can be positioned against a person's back, with the persons' back including an acute angle with the guide construction (2), seen in the direction of transport P1, under the influence of the back support (26).

2. An amusement device according to claim 1, characterized in that the holder comprises leg supports (31) disposed between the seat (6) and the guide construction (2), which leg supports (31) force the person's lower legs (35) into a position in which they include an acute angle with the guide construction, seen in the direction of transport P1.

3. An amusement device according to claim 2, characterized in that said leg supports comprise knee supports.

4. An amusement device according to claim 2 or 3, characterized in that said leg supports comprise foot supports disposed between the seat and the guide construction.

5. An amusement device according to any one of the preceding claims, characterized in that the back support (26) can be moved from a boarding position to a securing position, and vice versa, with the back support (26) in use abutting against the person's back in said securing position.

6. An amusement device according to any one of the preceding claims, characterized in that the amusement device (1) comprises at least one handle positioned in front of the back support, seen in the direction of transport, which handle is connected to the back support via a system of links, wherein the back support can be pivoted by means of said handle.

7. An amusement device according to any one of the preceding claims, characterized in that said handle can be moved against spring force.

8. An amusement device according to any one of the preceding claims, characterized in that the holder comprises a movable locking element, wherein the person's legs can be secured in use by means of the locking element.

9. An amusement device according to claim 8, characterized in that the handle is connected to the movable locking element, wherein both the locking element and the back support can be moved by means of said handle.

10. An amusement device according to any one of the preceding claims, characterized in that the back support can be locked in position.

11. An amusement device according to any one of the preceding claims, characterized in that the amusement device comprises at least two vehicles arranged side by side, seen in the direction of transport, which can be jointly moved over the guide construction.

12. An amusement according to claims 1-9, characterized in that a sidecar is present beside the vehicle, seen in the direction of transport, which sidecar is provided with a seat on which a person can be positioned.

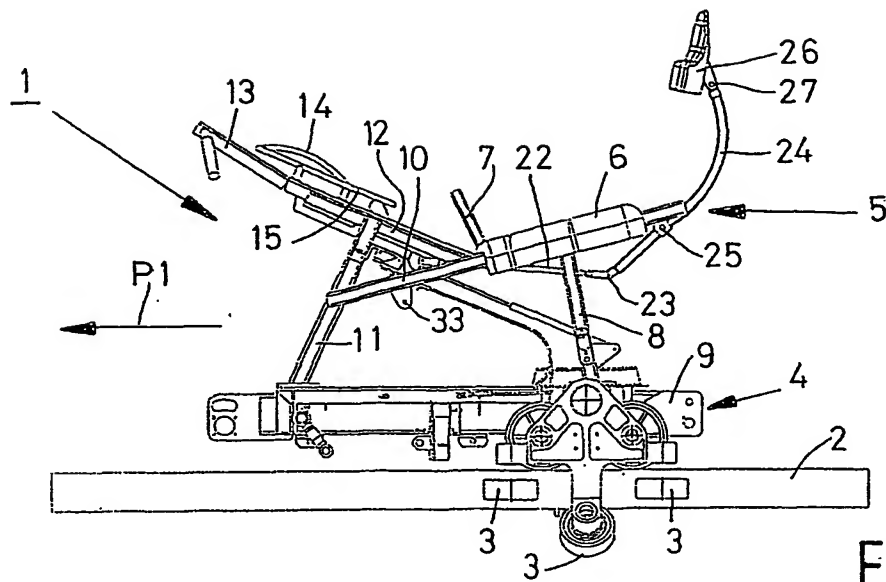


FIG. 1A

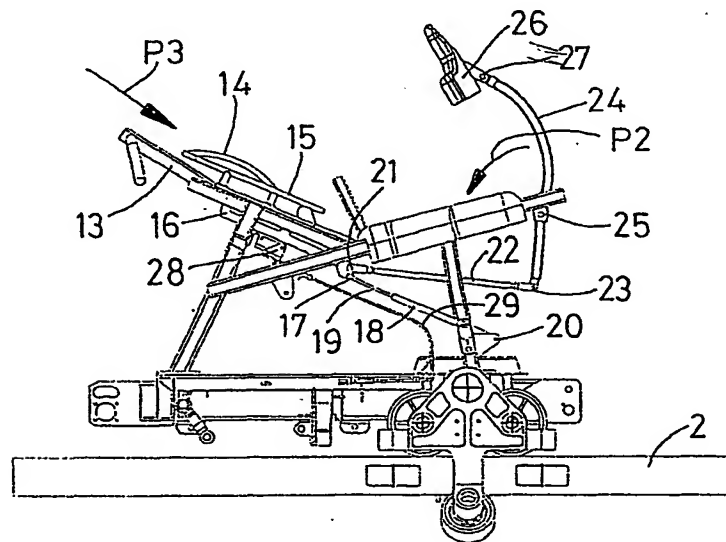


FIG. 1B

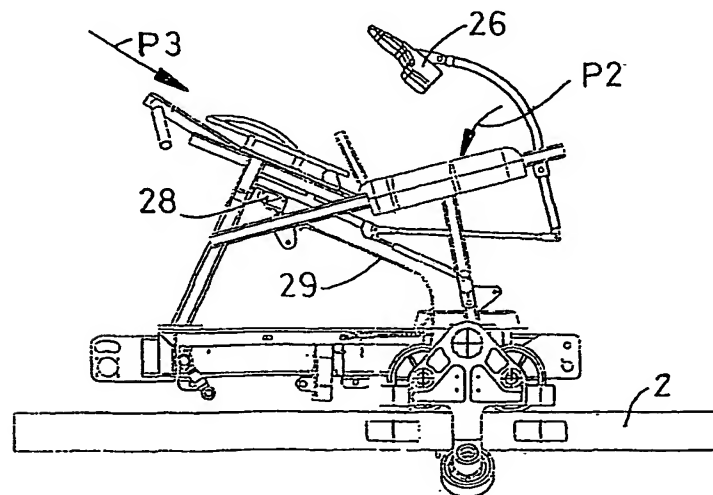
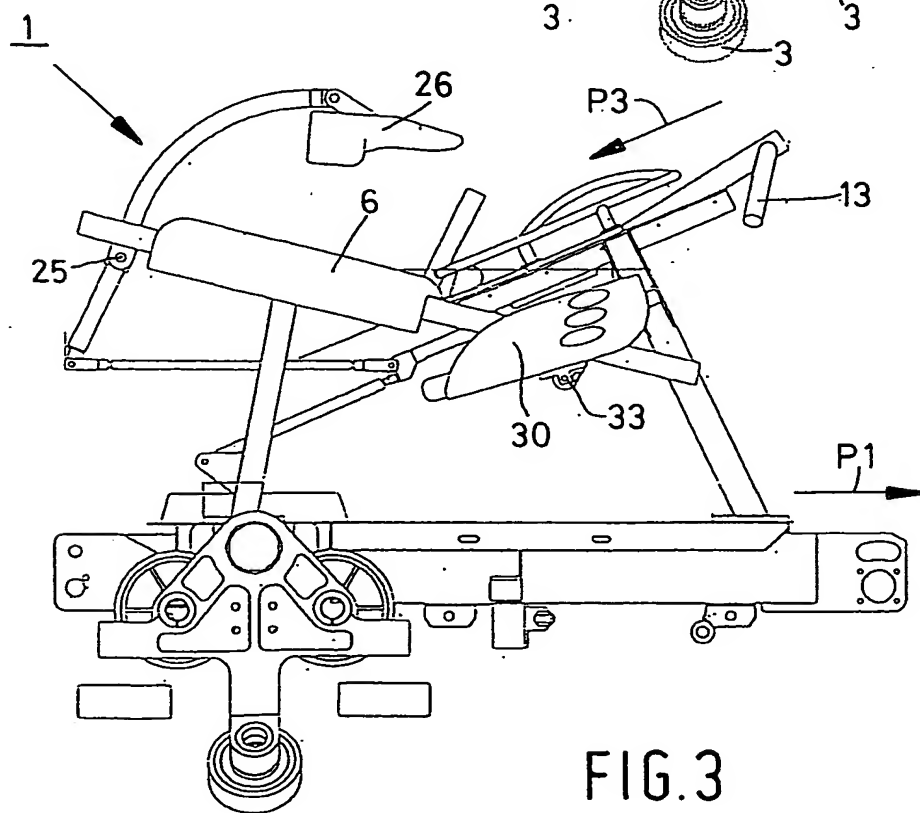
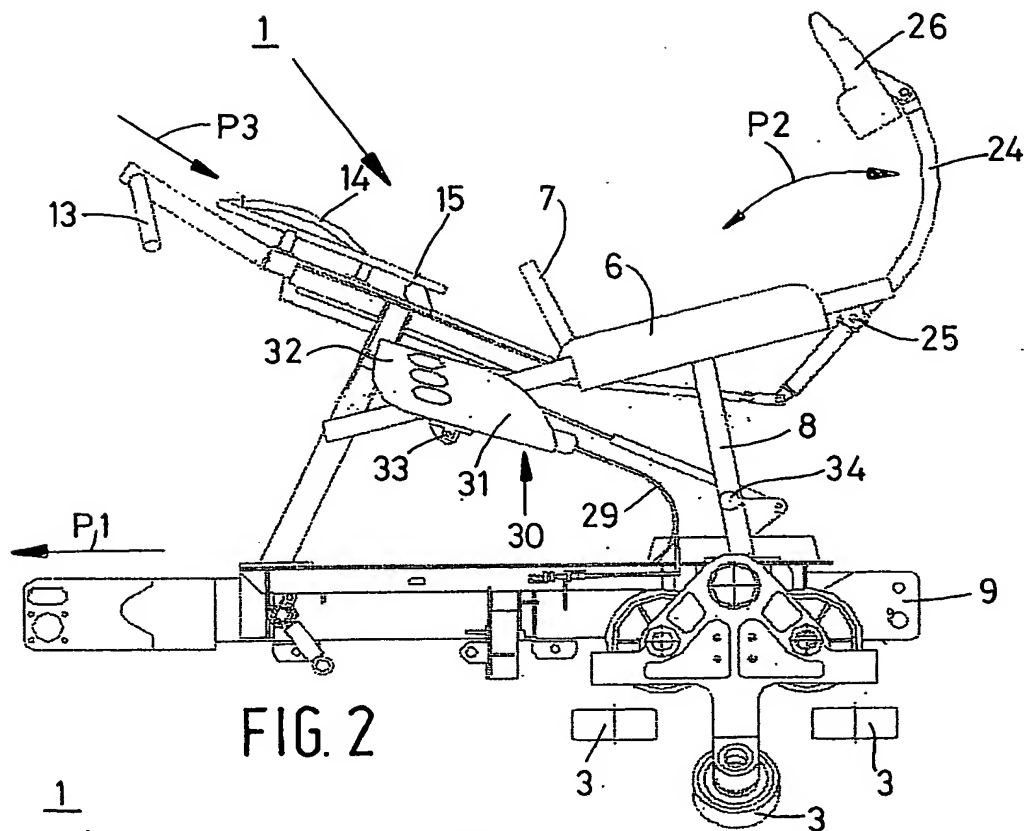
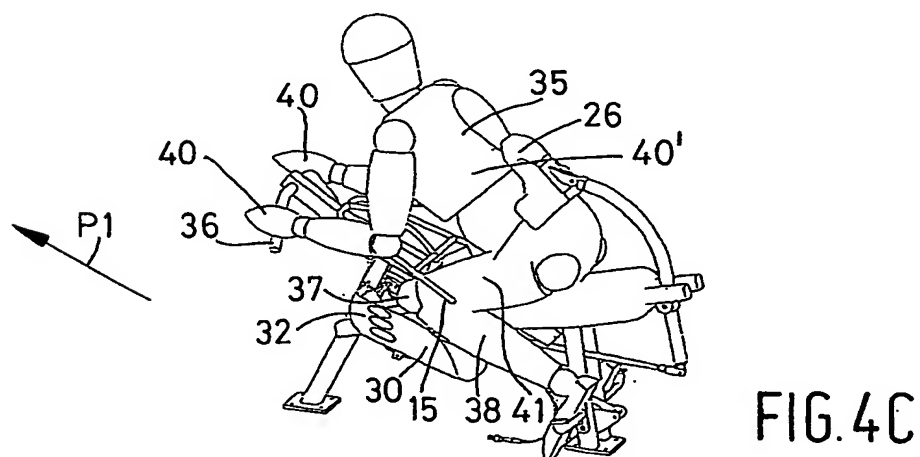
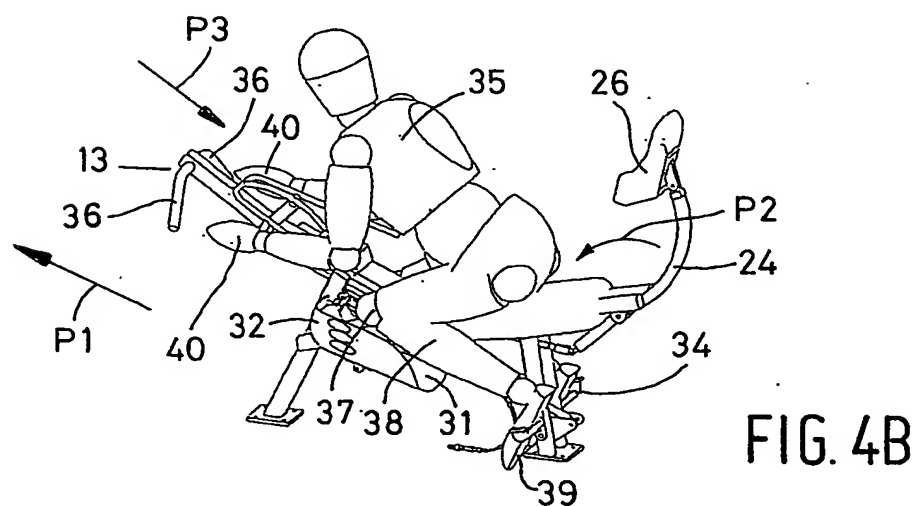
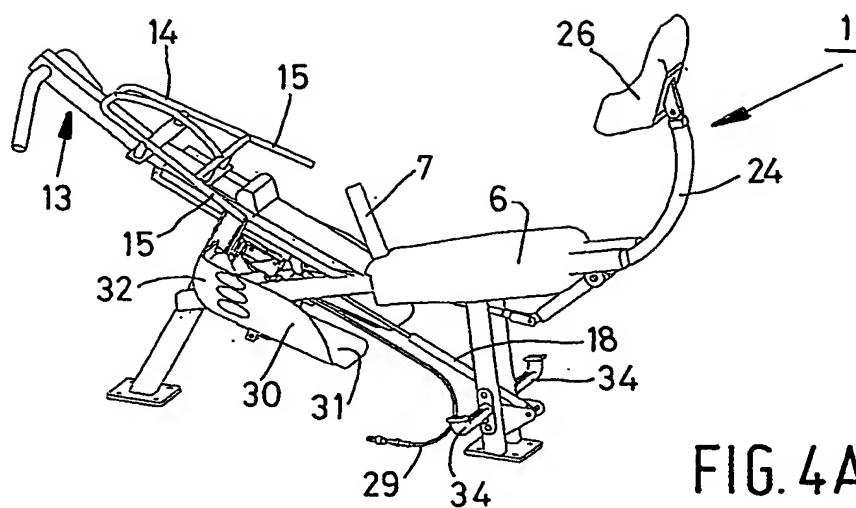


FIG. 1C





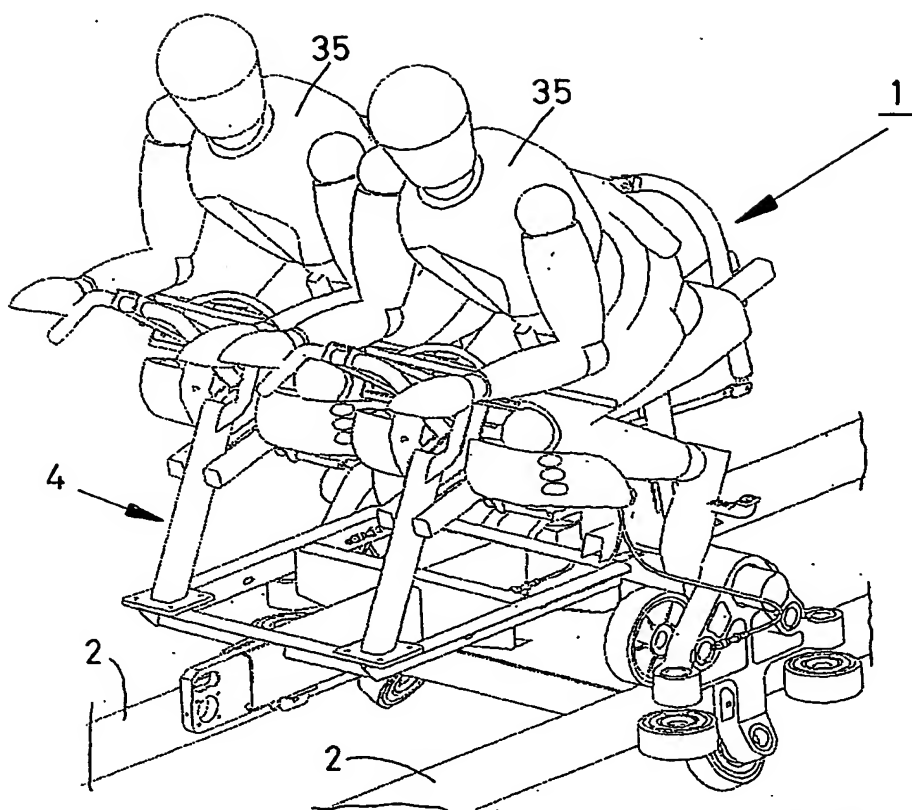


FIG. 5A

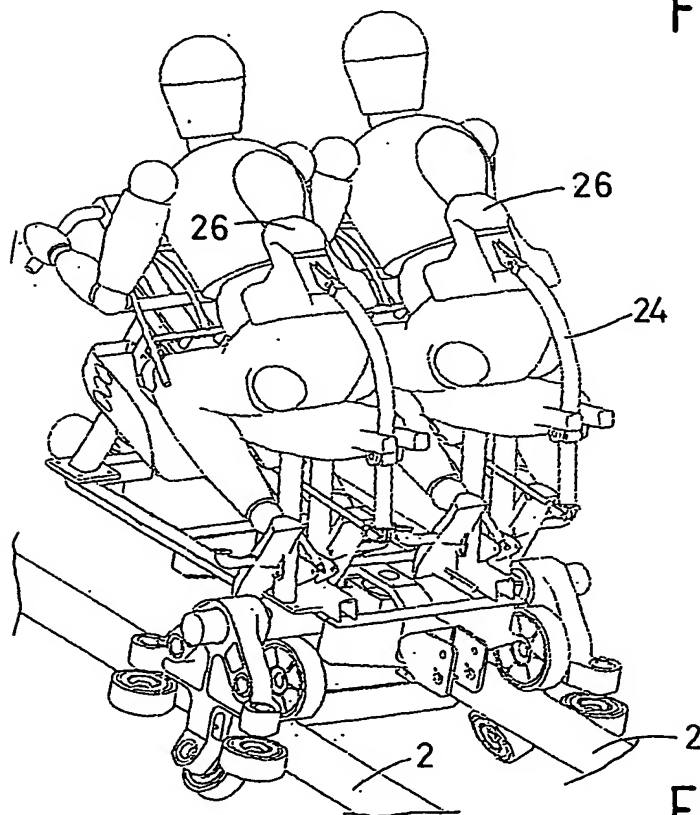


FIG. 5B

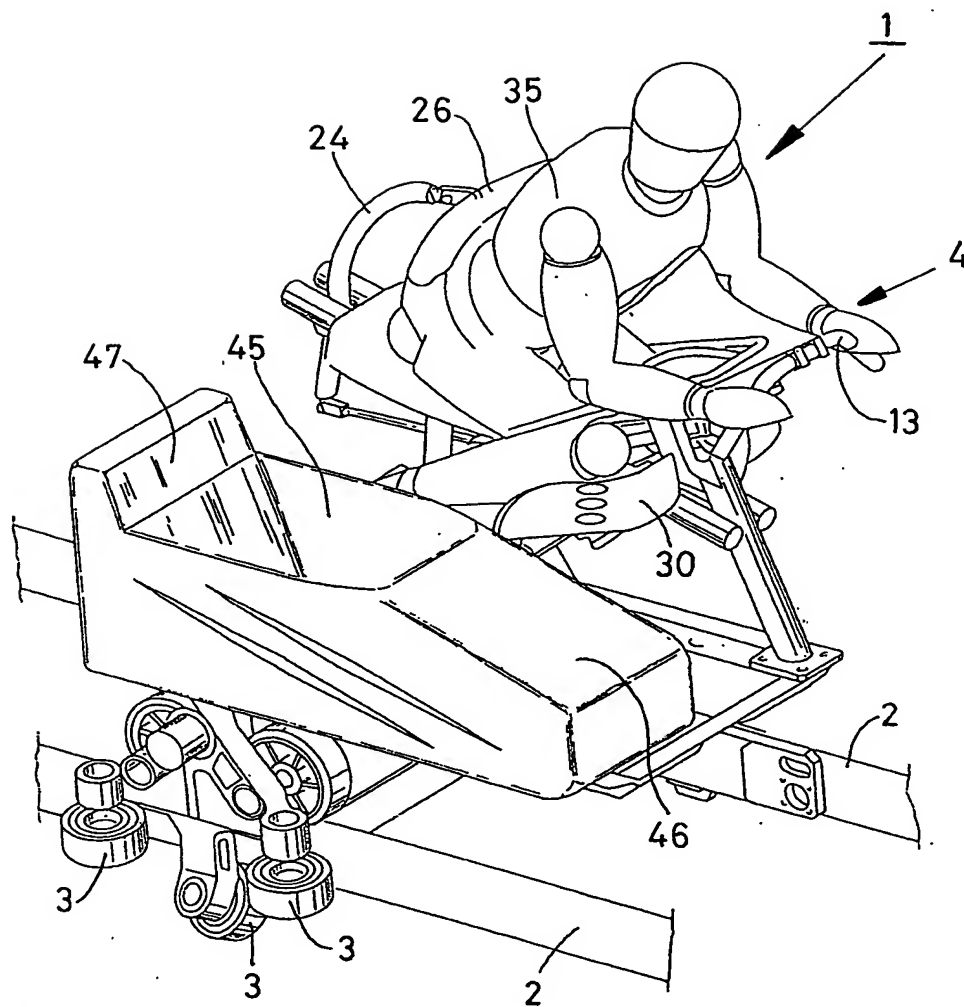


FIG. 6

INTERNATIONAL SEARCH REPORT

ational Application No

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A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 A63G7/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 A63G

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6 405 655 B1 (CLERX PETRUS JOSEPH HUBERTUS ET AL) 18 June 2002 (2002-06-18) abstract; figures 1-4, 6A	1-6, 8-12
X	FR 2 756 248 A (LE BRETON YANN) 29 May 1998 (1998-05-29) the whole document	1, 2, 7
A	DE 202 17 754 U (SCHÄFER, PETER) 20 March 2003 (2003-03-20) the whole document	1



Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

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Date of the actual completion of the international search

26 May 2004

Date of mailing of the international search report

12/07/2004

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Shmonin, V

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

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